CPU Cards

CPBH Series

PICMG Single-Board Computer with VGA, Dual GB LAN, SATA, USB, DIO, TV Out, Audio & PC/104

CPBH CEL-24-X: 2.4GHz Celeron CPU

CPBH P4-24-X: 2.4GHz Pentium 4 CPU

CPBH P4-32-X: 3.2 GHz Pentium 4 CPU

USER'S MANUAL

VER. 1.4 • APR 2005

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CyberResearch®, Inc.

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Safety Instructions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

■ Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.

■ Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.

■ Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handling the CPBH to protect yourself from the discharge of any static electricity through the strap.

■ Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENT WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

Chapter 1

General Description
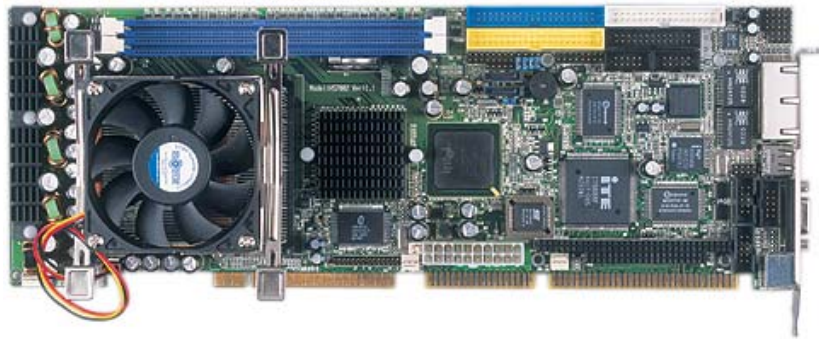
The CPBH is an Intel® 82865GV/82801EB chipset-based board designed for PICMG Bus PGA 478 Intel® Pentium® 4 CPU with speed of up to 3.2GHz CPU. The combination of these features makes the CPBH an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT/LVDS Panel, TV-Out, dual Giga LAN, audio, serial ATA, 4 COM port interface, and more.

Its onboard ATA/33/66/100 connected to IDE drive interface architecture allows the CPBH to support data transfers of 33, 66 or 100MB/sec. for each IDE drive connection. Designed with the Intel® 82865GV/82801EB core logic chipset, the board supports all PGA 478 Pentium® 4 CPU series with Intel® Hyper-Threading Technology clocking up to 3.2GHz. The display controller is Intel 82865GV with 1MB/8MB/16MB memory supporting CRT display up to 1600 x 1200 x 32-bit at 60Hz.

Serial ATA is the revolutionary ATA interface that provides scalable performance for IDE device. With up to 150MB/sec. data transfer rate, serial ATA is faster than the current parallel ATA and delivers superior input/output performance. In addition, the serial ATA interface is furnished with RAID 0/1 function for extra performance enhancement and data protection.

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System memory is also sufficient with the two DDR sockets that can support DDR-266/333/400 up to 2GB. 800MHz FSB CPU can support DDR-400, 533MHz FSB CPU, can support DDR-333, and 400MHz FSB CPU can support DDR-266.

Additional onboard connectors include an advanced USB2.0 and IrDA port providing faster data transmission, and two external RJ-45 connectors for use of one 100/1000 and one 10/100 OR two 10/100 Base-TX Ethernet interfaces.

1.1   Major Features
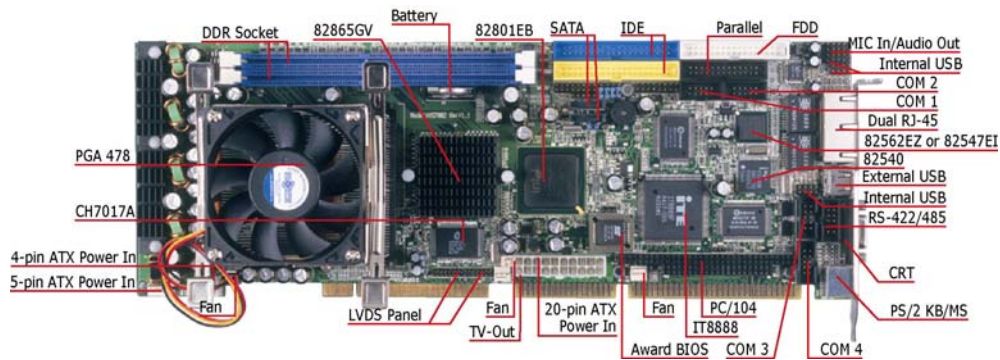
The CPBH comes with the following features:
  ➢ PGA 478 for Intel® Pentium® 4 CPU with Hyper-Threading Technology clocking up to 3.2GHz
  ➢ Supports 400/533/800MHz FSB
  ➢ Two DDR sockets with a max. capacity of 2GB
  ➢ Intel 82865GV/82801EB system chipset
  ➢ Winbond W83627 super I/O chipset
  ➢ Intel® 82865GV display controller
  ➢ Intel® 82562EZ (or 82547EI) and 82540 LAN controller
  ➢ AC97 3D audio controller
  ➢ Serial ATA controller
  ➢ Fast PCI ATA/33/66/100 IDE controller
  ➢ Four COM, seven USB2.0, PC/104 connector
  ➢ Hardware Monitor function
  ➢ LVDS Panel display interface (optional)
  ➢ TV-Out function (optional)

1.2   Specifications

- **CPU:** PGA 478 for Intel® Pentium® 4 CPU with Hyper-Threading Technology up to 3.2GHz
- **Bus Interface:** PICMG Bus
- **Front Side Bus:** Supports 400/533/800MHz FSB
- **Memory:** Two DDR sockets supporting DDR-266/333/400 up to 2GB
- **Chipset:** Intel® 82865GV/82801EB
- **I/O Chipset:** Winbond W83627
- **ISA Bridge:** ITE IT8888 (16-bit)
- **VGA:** Intel® 82865GV with 1MB/8MB/16MB shared main memory supporting CRT display up to 1600 x 1200 at 32-bit colors at 60Hz
- **LVDS Panel:** Supports LVDS interface (optional)
- **TV-Out:** Supports PAL or NTSC TV systems (optional)
- **LAN:** Intel® 82562EZ 10/100 Based (or 82547EI 100/1000 Based) and 82540 100/1000 Based LAN
- **Audio:** AC97 3D audio controller
- **Serial ATA:** Intel® ICH5 controller and with two ports supporting transfer rate up to 150MB/sec.
- **IDE:** Four IDE disk drives supporting ATA/33/66/100 and with transfer rates of up to 33/66/100MB/sec.
- **FDD:** Supports up to two floppy disk drives
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- **PC/104:** PC/104 connector for 16-bit ISA Bus
- **IrDA:** One IrDA TX/RX header
- **USB:** Seven USB2.0 ports, six internal and one external
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** Award PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256sec.
- **CMOS:** Battery backup
- **Temperature:** 0~60°C (operating)
- **Hardware Monitor:** Winbond W83627
- **Board Size:** 33.8(L) x 12.1(W) cm

1.3   Board Dimensions
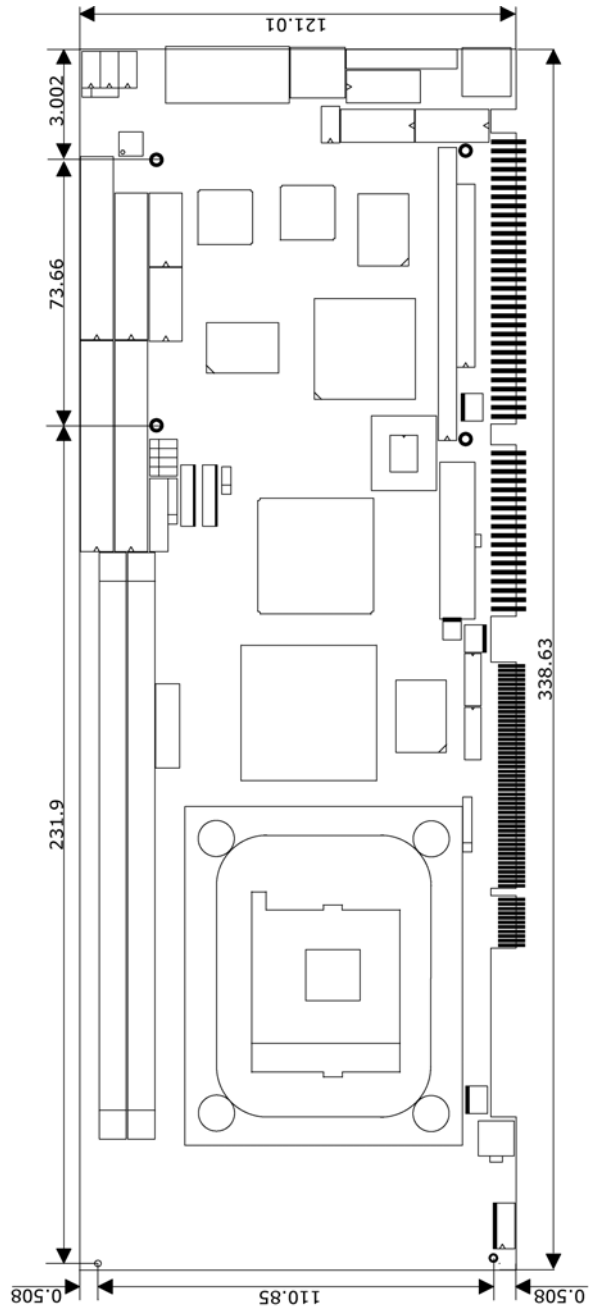
Chapter 2

Unpacking

2.1   Opening the Delivery Package

The CPBH is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2   Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Make sure all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip are firmly seated. The CPBH delivery package contains the following items:

- CPBH Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Cooling Fan x 1
- Jumper Bag x 1
- User's Manual
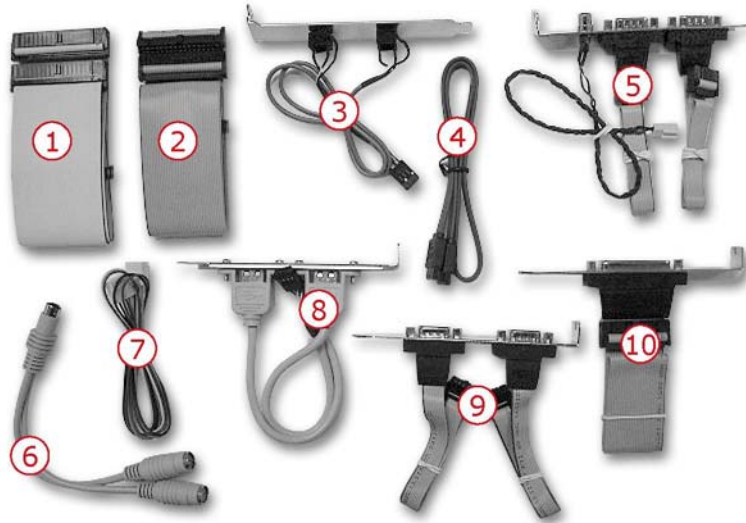
Cables Package	
NO.	**Description**
1	ATA/100 IDE flat cable x 2
2	Floppy flat cable x 1
3	MIC/Audio 8-pin cable + 2 phone jacks x 1
4	Serial ATA cable x 1
5	Two COM + RCA jack x 1
6	PS/2 KB/MS transfer cable x 1
7	5-pin ATX power cable x 1
8	8-pin USB split type cable with bracket x 1
9	Two COM flat cable with bracket x 1
10	Parallel port flat cable with bracket x 1

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the returned shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

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Chapter 3

Hardware Installation

This chapter provides the information on how to install the hardware using the CPBH. This chapter also contains information related to jumper settings of switch, watchdog timer selection, etc.

3.1   Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1.   Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (Set JP3 1-2)

2.   Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections in this chapter for the detailed information on the connectors.

3.   Keep the manual and diskette in good condition for future reference and use.

4.   Make sure your power supply is you use is for P4 only. One of 4-pin connectors is for +12V lead which should be connected to CN1 connector of the CPBH.

3.2 Board Layout
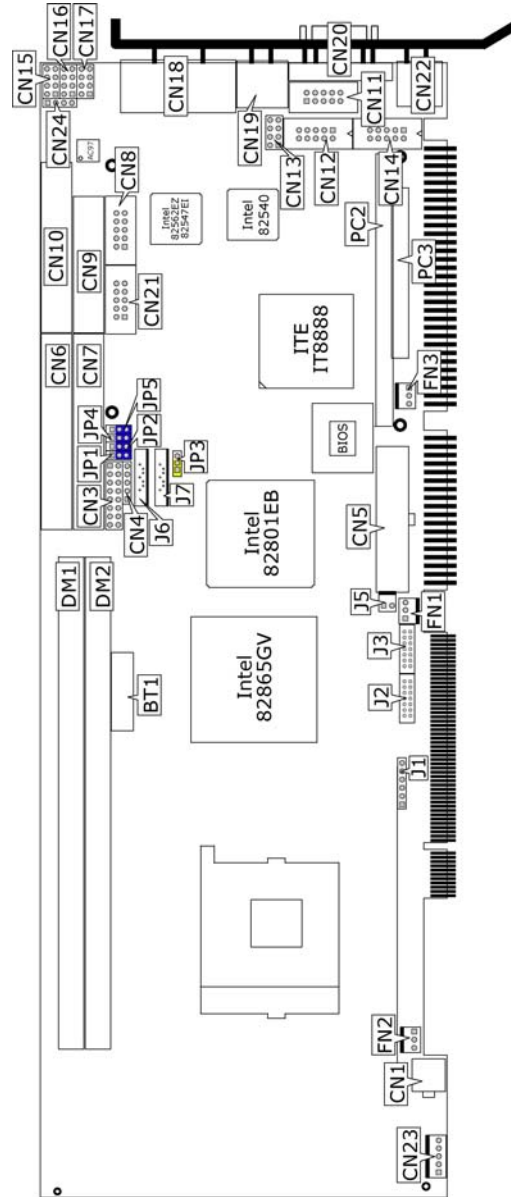
3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1/JP2/JP4/JP5	Use RS-232 or RS-422/485 Select: *RS-232*	2-3 Short	16
JP3	Clear CMOS: *Normal Operation*	1-2 Short	20

3.4 Connector List

Connector	Definition	Page
CN1/CN5	4-pin/20-pin ATX Power Connectors	20
CN3(1-3-5-7)	Speaker Connector	22
CN3(9-11)	Reset Button Connector	22
CN3(13-15)	HDD LED Switch	22
CN3(2-4-6-8)	Power LED Connector	22
CN3(10-12)	2-pin ATX Power ON/OFF Connector	22
CN3(14-16)	Green LED Connector	22
CN4	IrDA Connector	17
CN7/CN6	Primary/Secondary IDE Connectors	13
CN21/CN8/CN12/CN14	COM1~COM4 Connectors (5x2 header)	16
CN9	Parallel Connector	18
CN10	FDD Connector	15
CN11	RS-422/485 Connector (5x2 header)	16
CN13/CN16/CN17	USB2.0 Connectors	19
CN15	MIC In/Audio Out Connector	24
CN18	Dual RJ-45 Connector	19
CN19	External USB Connector	19
CN20	15-pin CRT Connector	10
CN22	PS/2 6-pin Mini DIN KB/MS Connector	22
CN23	5-pin ATX Power Connector	20
CN24	Line In Connector	
DM1/DM2	DDR Sockets	10
J1	Inverter Power Connector	10
J2	LVDS Connector	10
J3	LVDS Connector	10
J5	TV-Out Connector	24
J6 / J7	Serial ATA Connector	12
FN1 / FN2 / FN3	Fan Power Connector	20
PC2 / PC3	PC/104 64-pin/40-pin Connector	25

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3.5   Configuring the CPU

The CPBH offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the CPBH automatically identifies the frequency and clock speed of the installed microprocessor chip, thereby eliminating the need for user to do additional CPU configuration or hardware settings related to it.

The CPBH provides 400MHz/533MHz/800MHz FSB, and the all-in-one solution for the latest Intel® Pentium 4 processor with 800MHz FSB and Hyper-Threading Technology.

NOTE: *CPU Vcore should be located in the range of 0.8375V to 1.6V, otherwise system won't boot.*

3.6   System Memory

The CPBH provides two DDR sockets at locations *DM1* and *DM2*. The maximum capacity of the onboard memory is 2GB. 800MHz FSB CPU can support DDR-266/333/400, 533MHz FSB CPU can support DDR-266/333, and 400MHz FSB CPU can support DDR-266.

FSB \ Memory CLK	DDR-266	DDR-333	DDR-400
800MHz FSB	Yes	Yes	Yes
533MHz FSB	Yes	Yes	No
400MHz FSB	Yes	No	No

3.7   VGA Controller

The onboard Intel® 82865GV with 1MB/8MB/16MB (default) memory supports CRT displays up to 1600 x 1200 x 32-bit. The CPBH provides two methods of connecting VGA device. *CN20* offers a single standard CRT connector (DB15). And *J2, J3* offers LVDS Panel connectors.
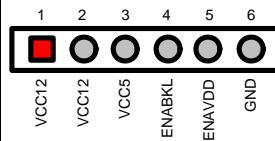
● **CN20: 15-pin CRT Connector (DB15)**

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	N/C	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SCL		
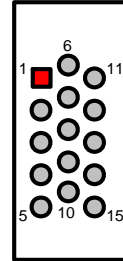
● **J1: Inverter Power Connector**

PIN	Description
1	VCC12
2	VCC12
3	VCC5
4	ENABKL
5	ENAVDD
6	GND

● **J3: LVDS Panel Connector**

PIN	Description	PIN	Description
1	VCC3	2	VCC3
3	GND	4	GND
5	A0M	6	A0P
7	A1M	8	A1P
9	A2M	10	A2P
11	CLK1M	12	CLK1P
13	A3M	14	A3P
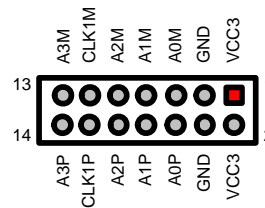
● **J2: LVDS Panel Connector**

PIN	Description	PIN	Description
1	VCC3	2	VCC3
3	GND	4	GND
5	A4M	6	A4P
7	A5M	8	A5P
9	A6M	10	A6P
11	CLK2M	12	CLK2P
13	A7M	14	A7P

3.9   PCI E-IDE Drive Connector

CN7 and *CN6* are standard 40-pin daisy-chain driver connectors that serve the PCI E-IDE drive provisions onboard the CPBH. A maximum of four ATA/33/66/100 IDE drives can be connected to the CPBH via *CN7* and *CN6*.

● **CN7: Primary IDE Connector**

PIN	Description	PIN	Description
1	RESET	2	GND
3	PDATA 7	4	PDATA 8
5	PDATA 6	6	PDATA 9
7	PDATA 5	8	PDATA 10
9	PDATA 4	10	PDATA 11
11	PDATA 3	12	PDATA 12
13	PDATA 2	14	PDATA 13
15	PDATA 1	16	PDATA 14
17	PDATA 0	18	PDATA 15
19	GND	20	N/C
21	PDREQ	22	GND
23	PIOW#	24	GND
25	PIOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	PDA1-	34	PATA66
35	PDA0-	36	PDA2-
37	PDCS1-	38	RPCS3-
39	HDD Active P	40	GND
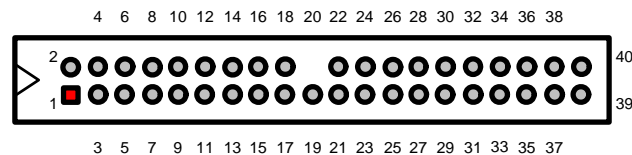
● **CN6: Secondary IDE Connector**

PIN	Description	PIN	Description
1	RESET	2	GND
3	SDATA 7	4	SDATA 8
5	SDATA 6	6	SDATA 9
7	SDATA 5	8	SDATA 10
9	SDATA 4	10	SDATA 11
11	SDATA 3	12	SDATA 12
13	SDATA 2	14	SDATA 13
15	SDATA 1	16	SDATA 14
17	SDATA 0	18	SDATA 15
19	GND	20	N/C
21	SDREQ	22	GND
23	SIOW#	24	GND
25	SIOR#	26	GND
27	SIORDY	28	PR1SD1-
29	SDDACK-	30	GND
31	Interrupt	32	N/C
33	SDA1-	34	SATA66
35	SDA0-	36	SDA2-
37	SDCS1-	38	SDCS3-
39	HDD Active S	40	GND
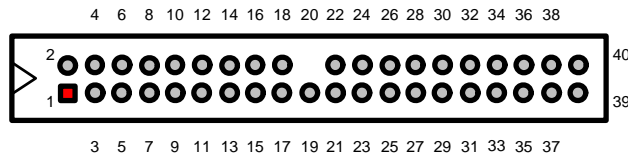
3.10 Floppy Disk Drive Connector

The CPBH uses a standard 34-pin header connector, *CN10*, for floppy disk drive connection. A total of two FDD drives may be connected to *CN10* at any given time.

● **CN10: FDD Connector**

PIN	Description	PIN	Description
1	GND	2	DRVDEN0
3	GND	4	N/C
5	GND	6	DRVDEN1
7	GND	8	INDEX#
9	GND	10	MTR0#
11	GND	12	DS1#
13	GND	14	DS0#
15	GND	16	MTR1#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TRAK00#
27	GND	28	WRTPRT#
29	GND	30	RDATA#
31	GND	32	HDSEL#
33	GND	34	DSKCHG#
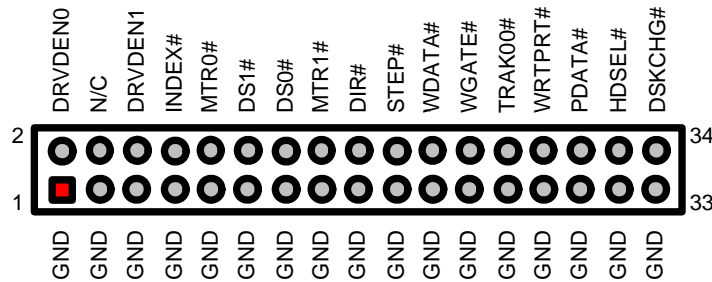
3.11 Serial Port Connectors

The CPBH's *CN21*, *CN8*, *CN12* and *CN14* provide four high speed NS16C550 compatible UART with Read/Receive 16 byte FIFO serial ports.

● **CN21: COM1 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD0	2	DSR0
3	RXDD0	4	RTS0
5	TXDD0	6	CTS0
7	DTR0	8	RI0
9	GND	10	N/C
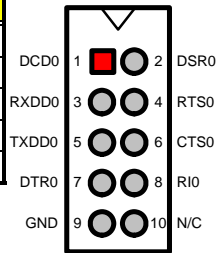
● **CN8: COM2 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD1	2	DSR1
3	RXDD1	4	RTS1
5	TXDD1	6	CTS1
7	DTR1	8	RI1
9	GND	10	N/C
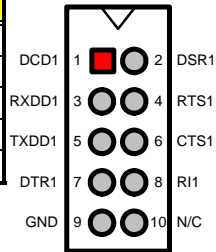
● **CN12: COM3 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD2	2	DSR2
3	RXDD2	4	RTS2
5	TXDD2	6	CTS2
7	DTR2	8	RI2
9	GND	10	N/C
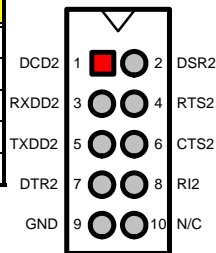
● **CN14: COM4 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD3	2	DSR3
3	RXDD3	4	RTS3
5	TXDD3	6	CTS3
7	DTR3	8	RI3
9	GND	10	N/C
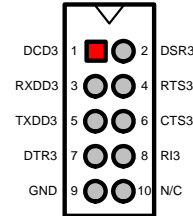
The onboard COM2 may be configured as RS-232, RS-422, or RS-485.

● **CN11: RS-422/485 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	RTS-
7	RTS+	8	CTS+
9	CTS-	10	N/C
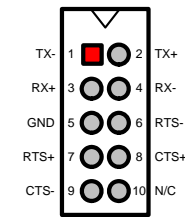
● **JP1/JP2/JP4/JP5: COM2 Use RS-232 or RS-422/485 Select**

Options	Settings
RS-232 (default)	Short 2-3
RS-422/485	Short 1-2

3.12 IrDA Connector

CN4 is a 5-pin internal FIR communication connector for connection of an IrDA device.

● **CN4: IrDA Connector**

PIN	Description
1	VCC
2	N/C
3	IRRX
4	GND
5	IRTX
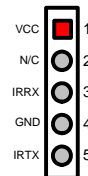
3.13 Parallel Connector

CN9 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the CPBH.

- **CN9: Parallel Connector**

PIN	Description	PIN	Description
1	Strobe	14	Auto Form Feed
2	DATA 0	15	ERROR#
3	DATA 1	16	Initialize
4	DATA 2	17	Printer Select LN#
5	DATA 3	18	GND
6	DATA 4	19	GND
7	DATA 5	20	GND
8	DATA 6	21	GND
9	DATA 7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND
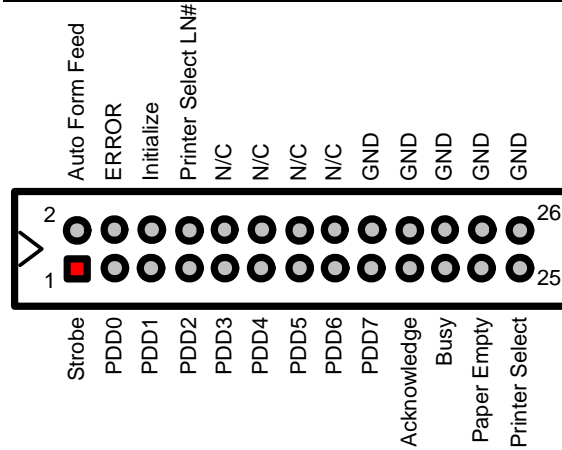
3.14 Ethernet Connector

The CPBH provides one 10/100 and one 100/1000 OR two 10/100 Base-TX LAN interface connectors. Please refer to the following for its pin information.

● **CN18: Dual RJ-45 Connector**

PIN	Description	PIN	Description
1	TX+	2	TX-
3	RX+	4	R/C GND
5	R/C GND	6	RX-
7	R/C GND	8	R/C GND
9	TTX+B	10	TTX-B
11	RRX+B	12	RRX-B
13	TTX+C	14	TTX-C
15	RRX+C	16	RRX-C
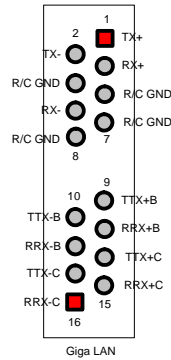
3.15 USB Connector

The CPBH provides three internal 8-pin USB2.0 and one 4-pin external USB2.0 connectors, at locations *CN13*, *CN16*, *CN17* and *CN19* for seven USB2.0 connections to the CPBH.

● **CN16: USB0/USB1 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD0-	4	BD1-
5	BD0+	6	BD1+
7	GND	8	GND
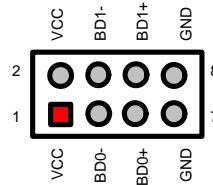
● **CN17: USB2/USB3 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD3-	4	BD2-
5	BD3+	6	BD2+
7	GND	8	GND
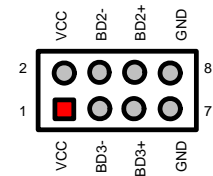
● **CN13: USB4/USB5 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD5-	4	BD4-
5	BD5+	6	BD4+
7	GND	8	GND
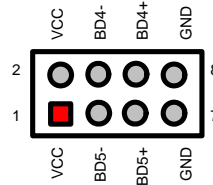
● **CN19: External USB Connector**

PIN	Description
1	VCC
3	BD6-
5	BD6+
7	GND
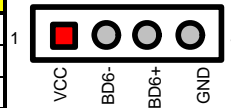
3.16 CMOS Data Clear

The CPBH has a Clear CMOS jumper on *JP3.*

● **JP3: Clear CMOS**

Optional	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3

IMPORTANT: *Before you turn on the power of your system, please set JP3 to short 1-2 for normal operation.*

3.17 Power and Fan Connectors

The CPBH provides one 4-pin and one 20-pin ATX power connectors at *CN1* and *CN5.*

The CPBH must use P4 power supply. One of 4-pin connectors is for +12V lead which should be connected to *CN1*.

A 20-pin ATX Power Connector can be connected to Backplane or to *CN5*. If a 20-pin ATX Power Connector connects to Backplane, please make sure *CN23* and Backplane's 5-pin ATX controller is connected together!

IMPORTANT: *Please plug CN1 (4-pin ATX power connector) before CN5 (20-pin ATX power connector) for protecting hardware circuit.*

● **CN1: 4-pin ATX Power Connector**

PIN	Description	PIN	Description
1	GND	2	GND
3	+12V	4	+12V
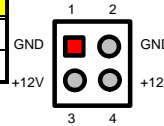
● **CN5: 20-pin ATX Power Connector**

PIN	Description	PIN	Description
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWORK	18	-5V
9	+5Vsb	19	+5V
10	+12V	20	+5V
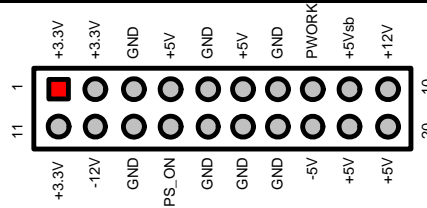
● **CN23: 5-pin ATX Power Connector**

PIN	Description	PIN	Description
1	VCC	2	5Vsb
3	+12V	4	PS_ON
5	GND		

Connector *FN1*, *FN2* and *FN3* onboard CPBH are 3-pin fan power connectors.

● **FN1~FAN3: Fan Power Connectors**

PIN	Description
1	GND
2	+12V
3	Fan In 1

CyberResearch, Inc.   **21**
25 Business Park Drive   P: (203) 483-8815; F: (203) 483-9024
Branford, CT USA   www.cyberresearch.com
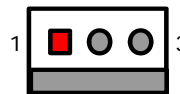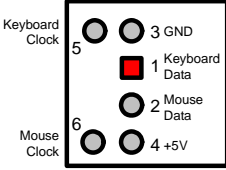
3.18 Keyboard/Mouse Connector

The CPBH offers one possibility for keyboard/mouse connection. The connections are done via *CN22* for an external PS/2 type keyboard/mouse.

● **CN22: PS/2 6-pin Mini DIN Keyboard Connector**

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock

3.19 System Front Panel Connectors

The CPBH has one system front panel connectors at location *CN3* that indicates the power-on status. This visual feature of the IDE LED may also be connected to an external IDE LED via connector *CN3(13-15)*.

Connector CN3 Orientation
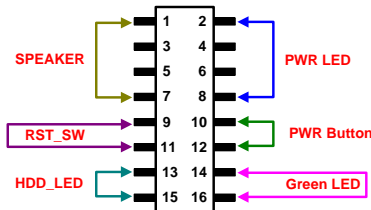
● **CN3: System Front Panel Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	GND	4	VCC
5	N/C	6	GND
7	CDR	8	GND
9	GND	10	PS_ON
11	Reset	12	5VSB
13	VCC	14	VCC
15	HDD_LED	16	Green_LED

3.20 Watchdog Timer

Once the Enable cycle is active, a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A System Reset signal will re-start when such error happens.

The following sample programs show how to Enable, Disable and Refresh the Watchdog Timer:

```
;---------------------------------------------------------------------------
; Enter the WDT function mode, interruptible double-write
;---------------------------------------------------------------------------
        MOV     DX, 2EH
        MOV     AL, 87H
        OUT     DX, AL
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, 07H
        OUT     DX, AL
        MOV     DX, 2FH
        MOV     AL, 08H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F5H
        OUT     DX, AL              ; select CRF0
        MOV     DX, 2FH
        MOV     AL, 80H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F7H
        OUT     DX, AL
        MOV     DX, 2FH

        MOV     AL, 00H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F6H
        OUT     DX, AL
        MOV     DX, 2FH
        MOV     AL, 00H             ; * 00H=Disabled
        OUT     DX, AL
;---------------------------------------------------------------------------
; Exit extended function mode
;------------ --------------------------------------------------------
        MOV     DX, 2EH
        MOV     AL, AAH
        OUT     DX, AL
```
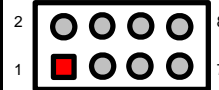
* User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec…..FFH = 255sec.

3.21 Audio Connectors

The CPBH has an onboard AC97 3D audio interface. The following table list the pin assignments of the MIC In/Audio Out connector.

● **CN15: MIC In/Audio Out Connector**

PIN	Description	PIN	Description
1	AOUT_L	2	AOUT_R
3	GND	4	GND
5	MIC IN	6	N/C
7	GND	8	GND

● **CN24: Line In Connector**

PIN	Description	PIN	Description
1	Line R	3	GND
2	GND	4	Line L
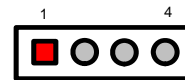
3.22 TV-Out Function

The CPBH can support TV-Out function whose input could be up to 800 x 600 graphics resolutions. World Wide Video standards are supported including NTSC-M (North America, Taiwan), NTSC-J (Japan), PAL-B, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Uruguay, Paraguay) and PAL-NC (Argentina).

● **J5: TV-Out Connector**

PIN	Description	PIN	Description
1	GND	2	TVCVB

3.23 PC/104 Connectors

The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 8-bit PC standard bus, thousands of PC/104 modules from multiple vendors can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors *PC2* and *PC3* are listed on the following tables:

NOTE： *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

● **PC3: PC/104 40-pin Connector**

| PIN	Description	PIN	Description
1	GND	21	GND
2	MEMCS16*	22	SBHE*
3	IOSC16*	23	LA23
4	IRQ10	24	LA22
5	IRQ11	25	LA21
6	IRQ12	26	LA20
7	IRQ15	27	LA19
8	IRQ14	28	LA18
9	DACK0*	29	LA17
10	DRQ0	30	MEMR*
11	DACK5*	31	MEMW*
12	DRQ5	32	SD8
13	DACK6*	33	SD9
14	DRQ6	34	SD10
15	DACK7*	35	SD11
16	DRQ7	36	SD12
17	+5V	37	SD13
18	MASTER*	38	SD14
19	GND	39	SD15
20	GND	40	GND

Connector diagram rotated 90 degrees clockwise from original position
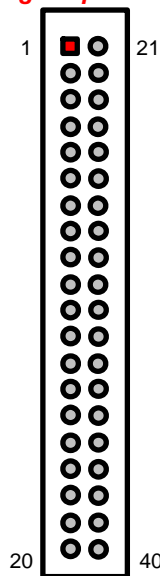
● PC2: 64-pin PC/104 Expansion Slot

PIN	Description	PIN	Description
1	IOCHECK*	33	GND
2	SD7	34	RESETDRV
3	SD6	35	+5V
4	SD5	36	IRQ9
5	SD4	37	-5V
6	SD3	38	DRQ2
7	SD2	39	-12V
8	SD1	40	0WS*
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	SMEMW*
12	SA19	44	SMEMR*
13	SA18	45	IOW*
14	SA17	46	IOR*
15	SA16	47	DACK3*
16	SA15	48	DRQ3
17	SA14	49	DACK1*
18	SA13	50	DRQ1
19	SA12	51	REFRESH*
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	IRQ6
23	SA8	55	IRQ5
24	SA7	56	IRQ4
25	SA6	57	IRQ3
26	SA5	58	DACK2*
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	+5V
30	SA1	62	OSC
31	SA0	63	N/C
32	GND	64	GND

Connector diagram rotated 90 degrees clockwise from original position
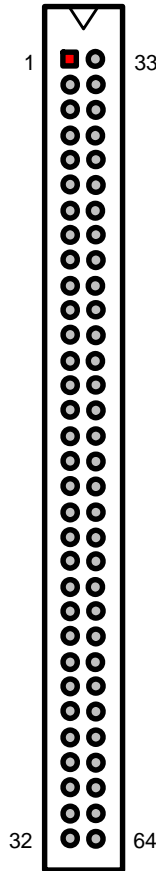
Chapter 4

Award BIOS Setup

The CPBH uses Award BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1   Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after switching the system on, or

2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and then ON, or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.2   Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.2.1   Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

4.3   Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc：Quit F9：Menu in BIOS	↑↓→←：Select Item
F10：Save & Exit Setup	
Time, Date, Hard Disk Type…	

NOTE: *A brief description of the highlighted choice appears at the bottom of the screen.*

4.4 Standard CMOS Features

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, you must set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Mon, Mar 8 2004	Item Help
Time (hh:mm:ss)	13 : 48 : 22	Menu Level ▶
▶ IDE Primary Master	[None]	
▶ IDE Primary Slave	[None]	Change the day, month,
▶ IDE Secondary Master	[None]	year and century
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, Errors]	
Base Memory	640K	
Extended Memory	252928K	
Total Memory	253952K	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.5 Advanced BIOS Features

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU L1 & L2 Cache	Enabled	Menu Level ►
CPU L3 Cache	Enabled	
Hyper-Threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	Change the day, month,
Third Boot Device	CDROM	year and century
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up Num Lock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control For OS	1.4	
OS Select For DRAM > 64MB	Non-OS2	
Report NO FDD for WIN 95	NO	
Full Screen LOGO Show	Disabled	
Small Logo (EPA) Show	Disabled	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.6   Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications between the conventional ISA and PCI buses. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider and make any changes only if you discover that the data has been lost while using your system.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	By SPD	Item Help
CAS Latency Time	2	Menu Level ▶
Active to Precharge Delay	8	
DRAM RAS# to CAS# Delay	4	
DRAM RAS# Precharge	4	Change the day, month,
Memory Frequency For	Auto	year and century
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Memory Hole At 15M-16M	Disabled	
Delay Prior to Thermal	16 Min	
AGP Aperture Size (MB)	128	
Init Display First	PCI Slot	
** ON-chip VGA Setting **		
On-chip VGA	Enabled	
On-chip Frame Buffer size	16MB	
Boot Display	Auto	
Panel Scaling	Auto	
Panel Number	1	
TV Standard	Off	
Video Connector	Automatic	
TV Format	Auto	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.7   Integrated Peripherals

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

OnChip IDE Device	[Press Enter]	Item Help
Onboard Device	[Press Enter]	Menu Level ▶
SuperIO Device	[Press Enter]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
On-Chip Primary PCI IDE	[Enabled]	Menu Level ▶
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
*** On-Chip Serial ATA Setting ***		
On-Chip Serial ATA	[Auto]	
Serial ATA Port0 Mode	[Primary Master]	
Serial ATA Port1 Mode	[Primary Master]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	Menu Level ▶
USB Keyboard Support	[Enabled]	
USB Mouse Support	[Disabled]	
AC97 Audio	[Auto]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

Phoenix – AwardBIOS CMOS Setup Utility
SuperIO Device

POWER ON Function	[BUTTON ONLY]	Item Help
KB Power ON Password	[Enter]	Menu Level ▶
Hot Key Power ON	[Ctrl-F1]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
RXD , TXD Active	[Hi, Lo]	
IT Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Use IR Pins	[IR-RX2TX2]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
ECP Mode Select	[EPP1.7]	
ECP Mode Use DMA	[3]	
PWRON After PWR-Fail	[Off]	
Mini Port Address	[Disabled]	
Mini Port IRQ	5	
Onboard Serial Port 3	[3E8]	
Serial Port 3 Use IRQ	[IRQ10]	
Onboard Serial Port 4	[2E8]	
Serial Port 4 Use IRQ	[IRQ11]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.8   Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI function	[Enabled]	Item Help
ACPI Suspend Type	[S1(POS)]	Menu Level ▶
Run VGABIOS if S3 Resume	Auto	
Power Management	[User Define]	
Video off Method	[DPMS]	Change the day, month,
Video off In Suspend	[Yes]	year and century
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-off by PWR-BTTN	[Instant-Off]	
CPU THRM-throttling	[50.0%]	
Wake-up by PCI card	[Enabled]	
Power On by Ring	[Enabled]	
Wake Up On LAN	[Enabled]	
USB KB Wake-up From S3	Disabled	
Resume by Alarm	[Disabled]	
Date(of Month) Alarm	0	
Time(hh:mm:ss) Alarm	0:0:0	
** Reload Global Timer Events **		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD, COM, LPT Port	[Disabled]	
PCI PIRQ[A-D]#	[Disabled]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

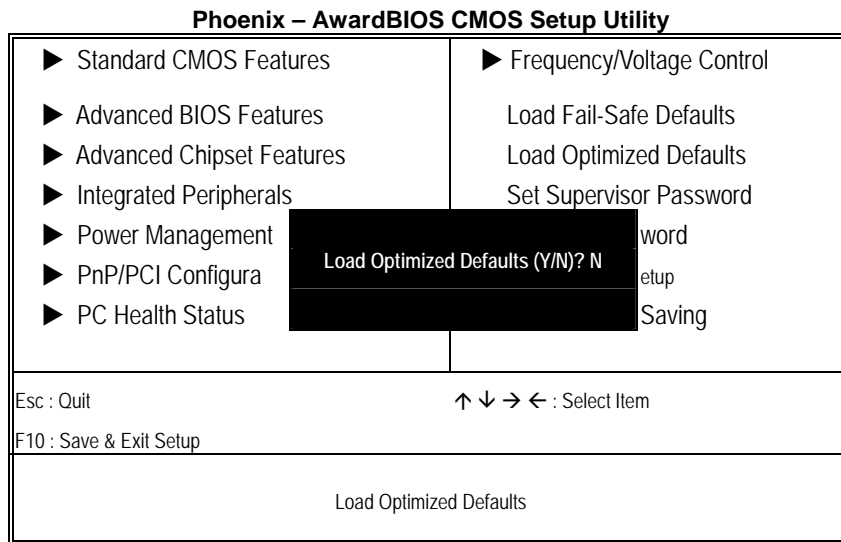# 4.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**eripheral **C**omponents **I**nterconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix – AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	Menu Level ▶
Resources Controlled By	[Auto(ESCD)]	
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.10 PC Health Status

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

CPU Warning Temperature	[Disabled]	Item Help
Current System Temp.		Menu Level ▶
Current CPU1 Temperature		
Current System FAN Speed:		
Current CPU FAN Speed		
Current Chassis FAN Speed		
Vcore		
+3.3V		
+5V		
+12V		
-12V		
-5V		
VBAT(V)		
5VSB(V)		
Shutdown Temperature	[Disabled]	

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.11 Frequency/Voltage Control

Phoenix – AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	[8X]	Item Help
Auto Detect DIMM/PCI Clk	[Enabled]	Menu Level ▶
Spread Spectrum	[Disabled]	
		Change the day, month, year and century

↑↓→←: Select Item   + / - /PU/PD: Value   F10: Save   ESC: Quit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

4.12 Load Fail-Safe Defaults

When you press <Enter> on this item you will get a confirmation dialog box with a message shown below. This option allows you to load/restore the BIOS default values permanently stored in the BIOS ROM. Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Phoenix – AwardBIOS CMOS Setup Utility

▶ STANDARD CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	word
▶ PnP/PCI Configura	etup
▶ PC Health Status	Saving

Load Fail-Safe Defaults (Y/N)? N

Esc : Quit   ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup

Load Fail-Safe Defaults

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4.13 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to the figure below. This option allows you to load/restore the default values to your system configuration, optimizing and enabling all high performance features. Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	word
▶ PnP/PCI Configura	etup
▶ PC Health Status	Saving

Load Optimized Defaults (Y/N)? N

Esc : Quit   ↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Load Optimized Defaults

4.14 Set Supervisor/User Password

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurati Enter Password : t Setup	
▶ PC Health Status	ut Saving

Esc : Quit   ↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Change / Set / Disable Password

You can set either supervisor or user password, or both of them. The differences between are:

● **supervisor password:** can enter and change the options of the setup menus.

● **user password:** just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

PASSWORD DISABLED.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password and then will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

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When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.15 Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted.

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	SAVE to CMOS and EXIT (Y/N)? N word
▶ PnP/PCI Configura	etup
▶ PC Health Status	Saving

Esc : Quit   ↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Save Data to CMOS

4.16 Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Phoenix – AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	word
▶ PnP/PCI Configura	etup
▶ PC Health Status	Saving

Quit Without Saving (Y/N)? N:

Esc : Quit   ↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Abandon all Data

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Chapter 5

Software Utilities

This chapter contains the detailed information of IDE, VGA, LAN and Audio driver installation procedures. The utility disk that came with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and Audio drivers. The following sections describe the installation procedures of each driver based on Win 95/98, Win 2000 and Win NT operating systems. It is recommended that you install the drivers matching the sections listed in this chapter.

5.1   IDE Driver Installation

5.1.1   Installing Intel Chipset Software Utility

1.   Insert Utility CD Disk into your CD ROM drive. Click "Install Drivers" then click the "CPBH" button.
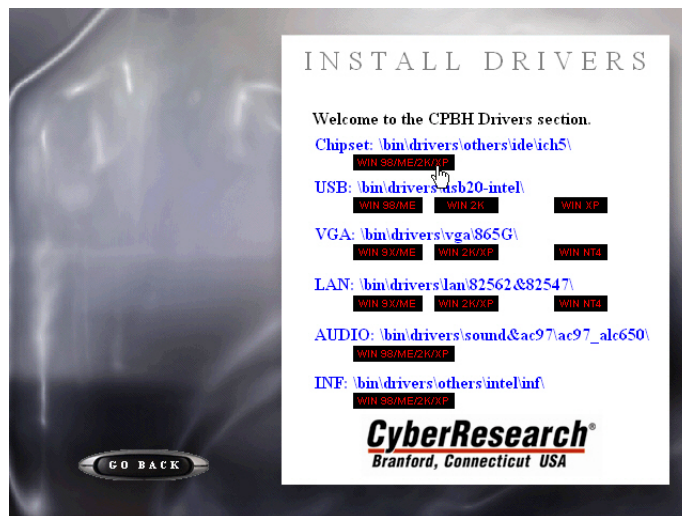
2.   Then click on the Operating System link below "Chipset:" path, as seen above.

3.   Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **<u>N</u>ext >** button to proceed.
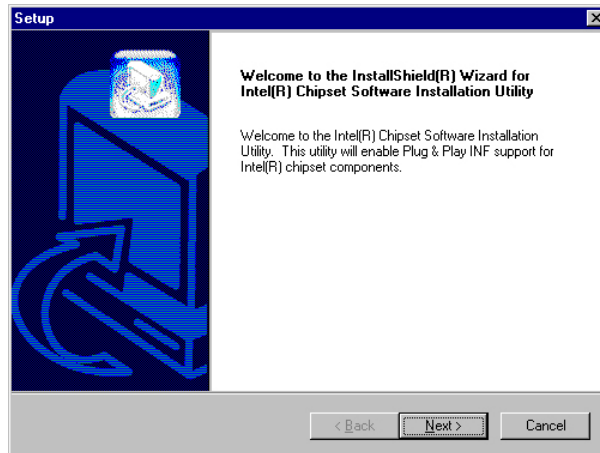
4.   The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **<u>Yes</u>** to proceed.
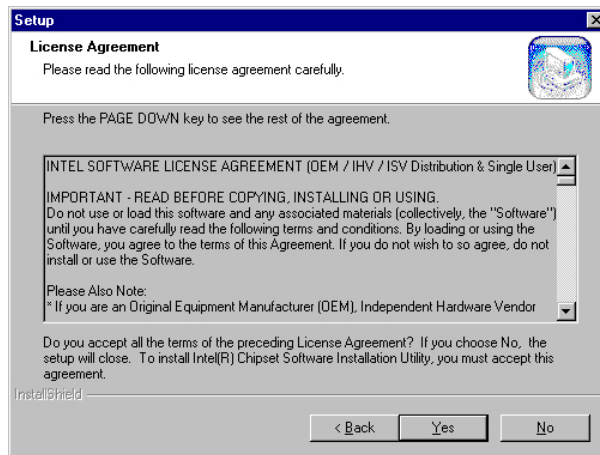
5. When the Readme Information dialog box pops up, just click on the **Next** button to proceed.
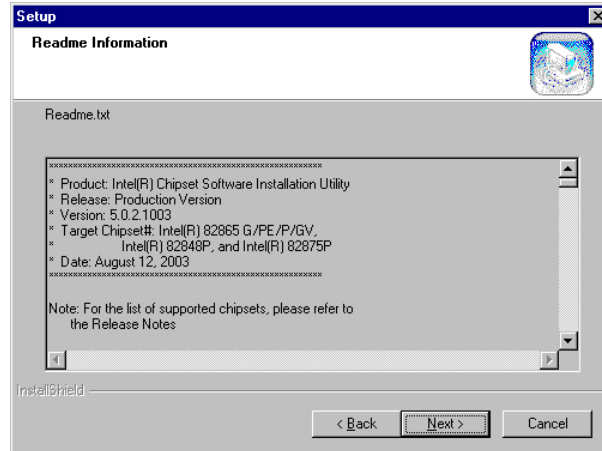
6. Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

5.2   VGA Driver Installation

1. Insert Utility CD Disk into your CD ROM drive. Click "Install Drivers" then click the "CPBH" button.
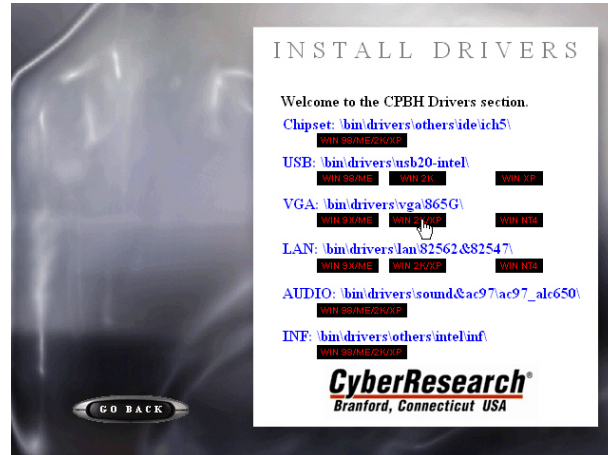
2. Then click on the appropriate Operating System link below the "VGA:" path, as seen above.

3. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.
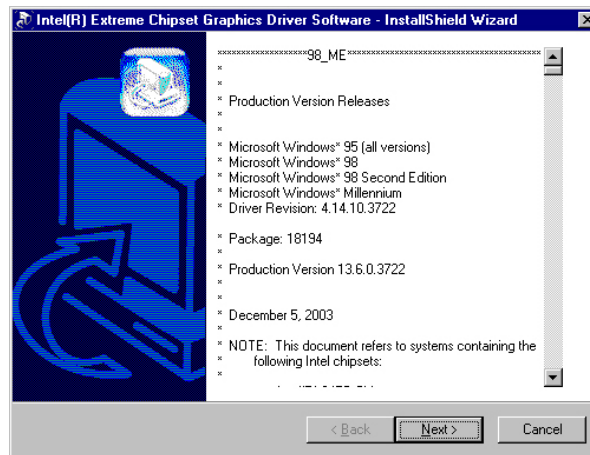
4.   Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **<u>Next ></u>** button to proceed.
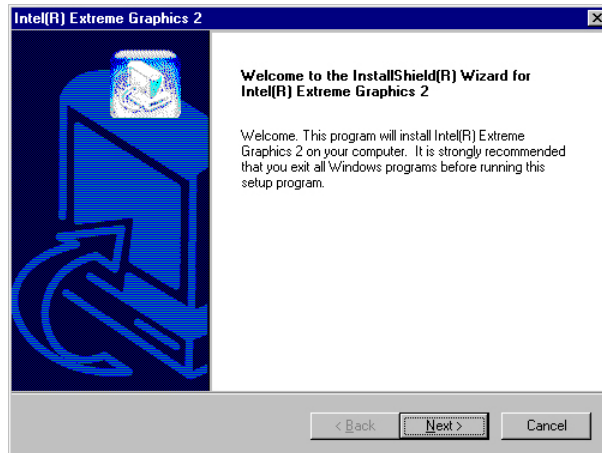
5.   The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **<u>Yes</u>** to proceed.
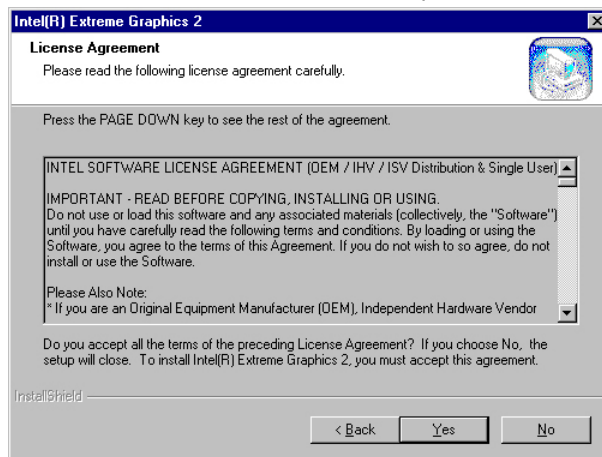
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.
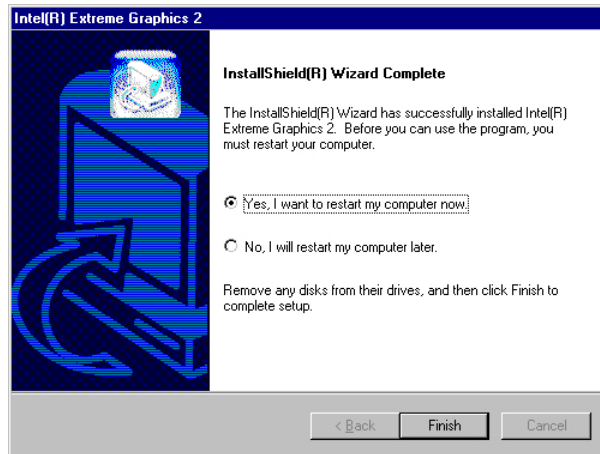
5.3   LAN Driver Installation

5.3.1   Win 95/98/2K/XP

1. Insert Utility CD Disk into your CD ROM drive. Click "Install Drivers" then click the "CPBH" button.
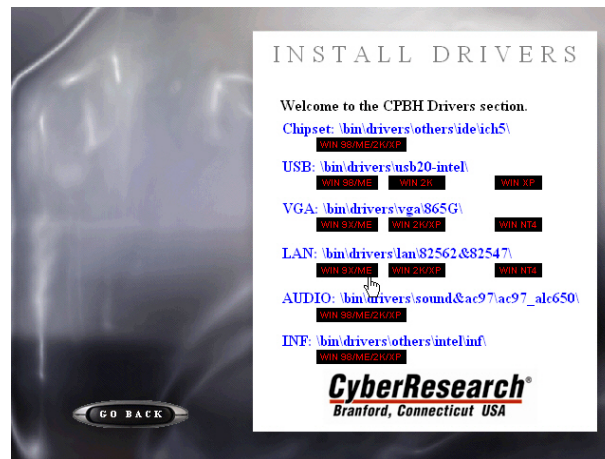
2. Then click on the appropriate Operating System link below the "LAN:" path, as seen above.

3.   The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.
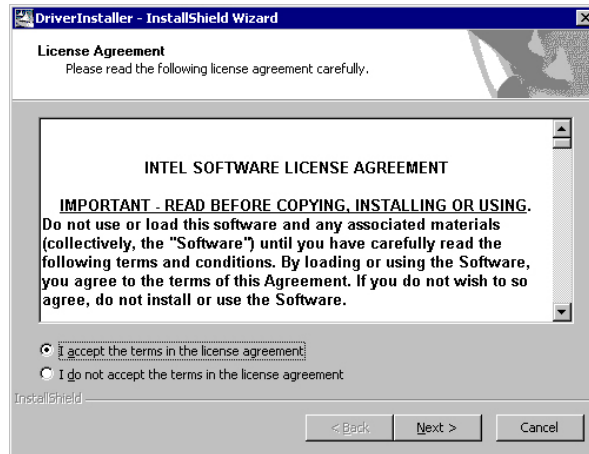
4.   When the dialog box below appears, make sure the folder you'll save file in, then Click on the **Next >**
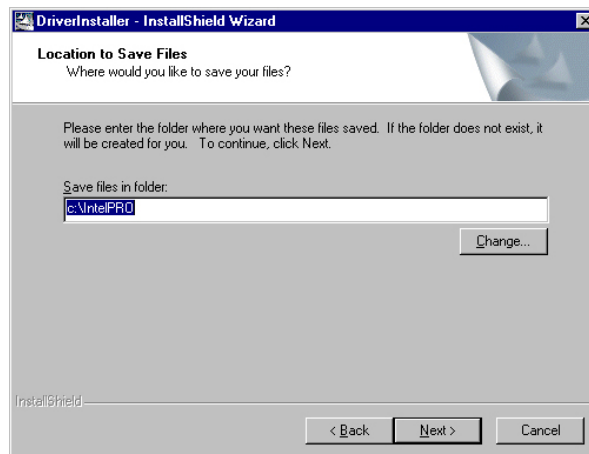
5. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Install Base Driver** button to proceed.

6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Restart now** to reboot. Only after your computer boots will the new settings take effect.
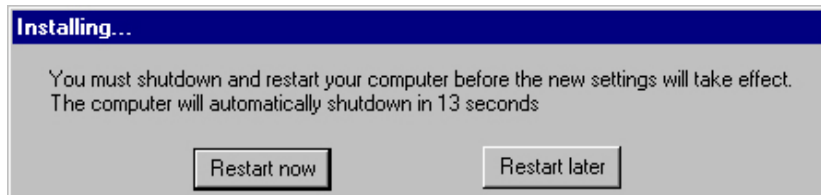
5.3.2 Win NT

NOTE: *Please make sure you have already installed **Service Pack 6.0.***

1. The system automatically detects the absence of Windows NT Networking. Click on the **Yes** button to start installation.

2.   Tick on the **Wired to Network** once the following screen appears. Click on **Next >** to proceed.
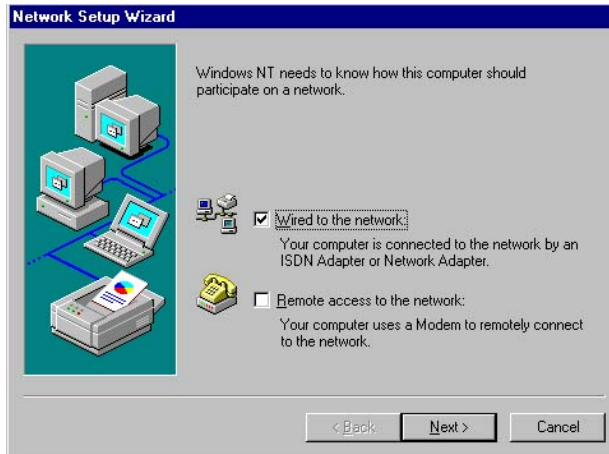
3.   Click on the **Start Search** button for the program to locate the Network Adapter.
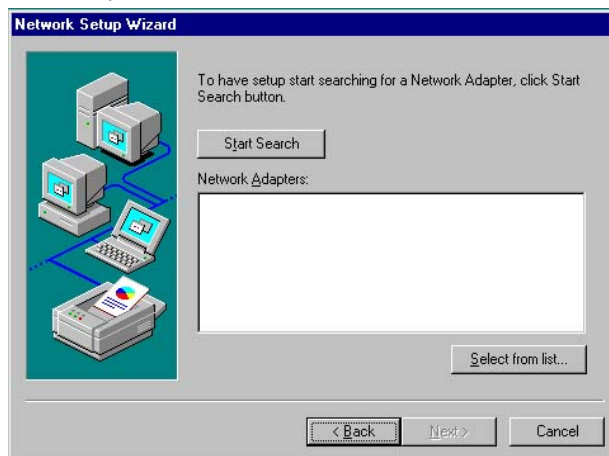
4. Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the **Have Disk** button to assign the driver path location.
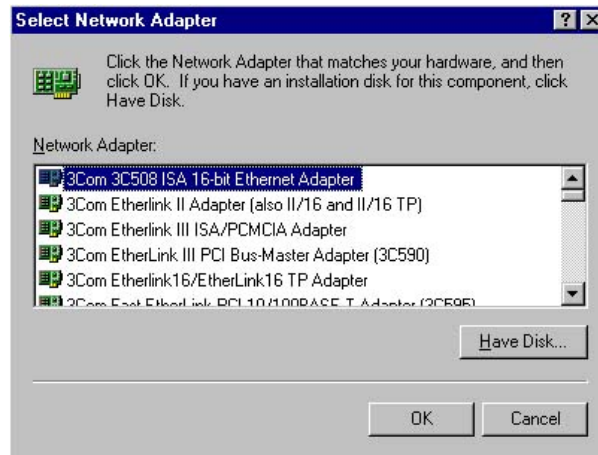
5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.
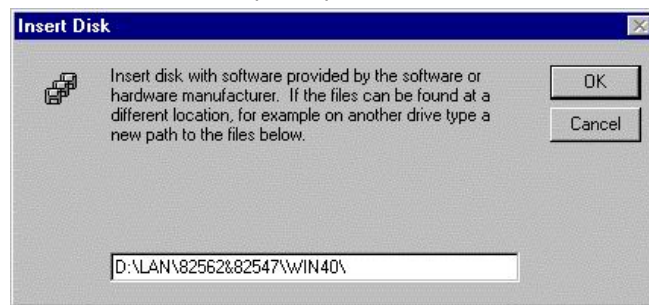
6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. If using 82562EZ, please choose **"Intel(R) PRO/100 Family Adapter"**. If using 82540EM or 82547EI, please choose **"Intel(R) PRO/1000 Family Adapter"**. Press on the **OK** button to accept and proceed.

7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **<u>Next</u>** to continue.
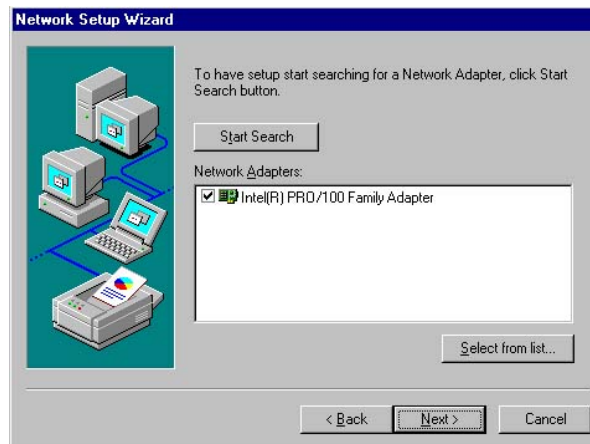
8.   The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.
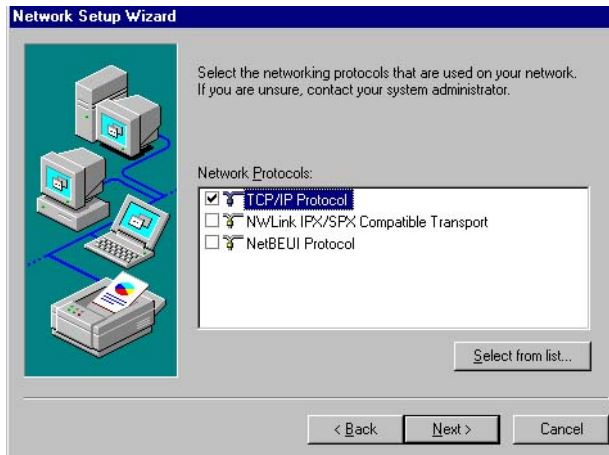
9.   Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.
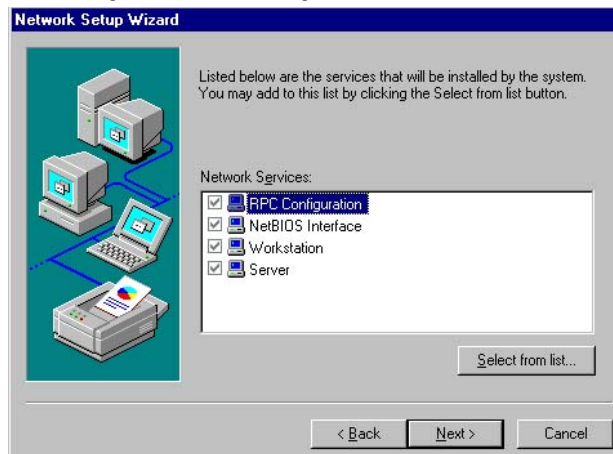
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path and then press **Continue**.
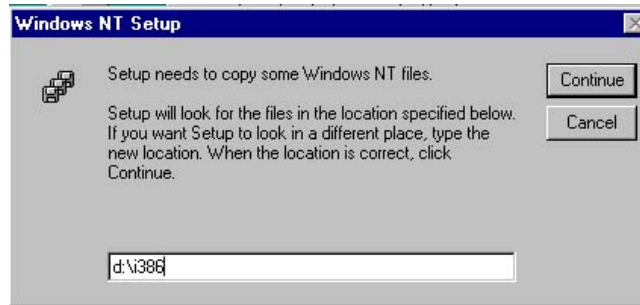
11. When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.
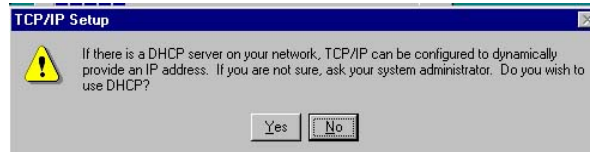
12. Setup then starts the Networking installation and copies the files.

13. When the screen below appears, click on **Next** to continue.
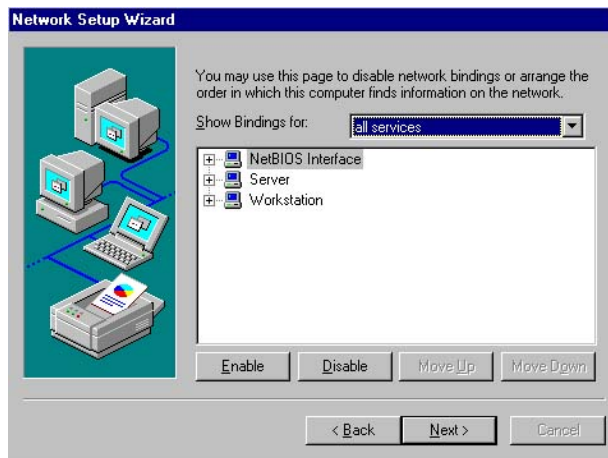
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next** to continue.
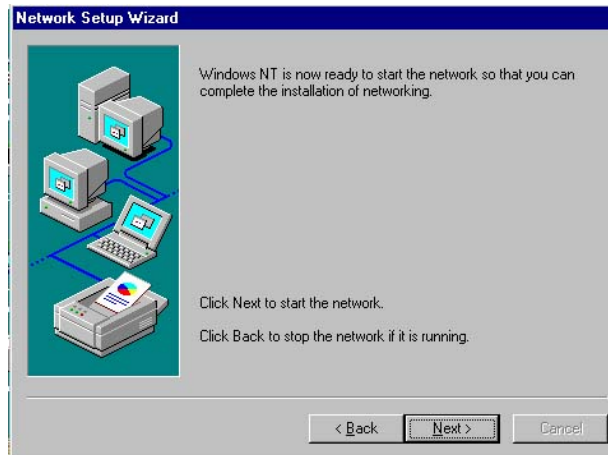
15. Assign the workgroup or domain setting of your computer. Click on Next to continue.
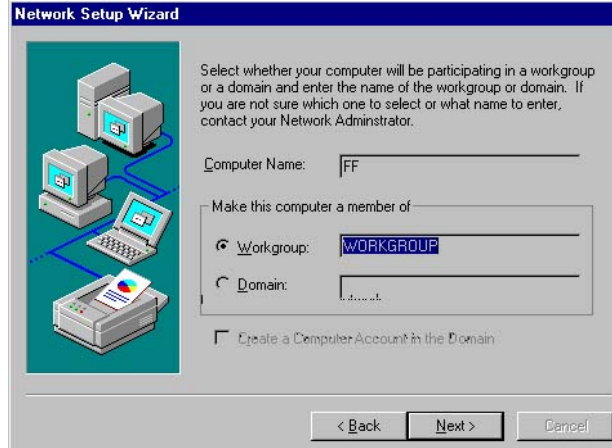
16. Click on the **Yes** button to restart your computer. The LAN1 driver installation for WIN NT4.0 is now complete.
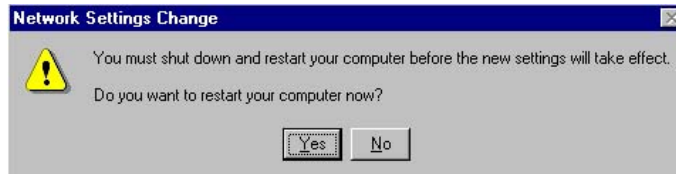
17. With the Utility CD Disk still in your CD ROM drive, we can install LAN2. Right click on "**Network Neighborhood**" icon from the desktop. Select on Properties and then proceed to the Network from the main menu. Click on **Add** to continue.
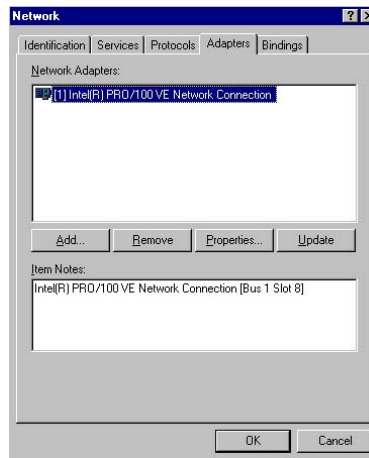
18. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **OK** to continue.

19. Click on the **Close** button. The LAN2 driver installation for WIN NT4.0 is now complete.
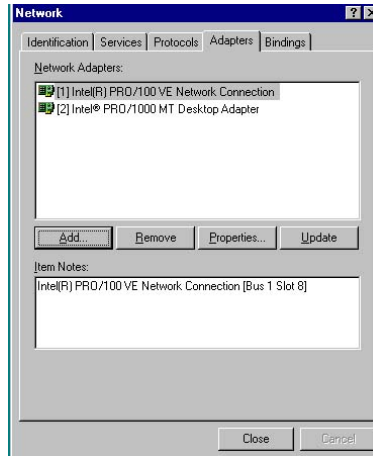
5.4 Audio Driver Installation

1. Insert Utility CD Disk into your CD ROM drive. Click "Install Drivers" then click the "CPBH" button.
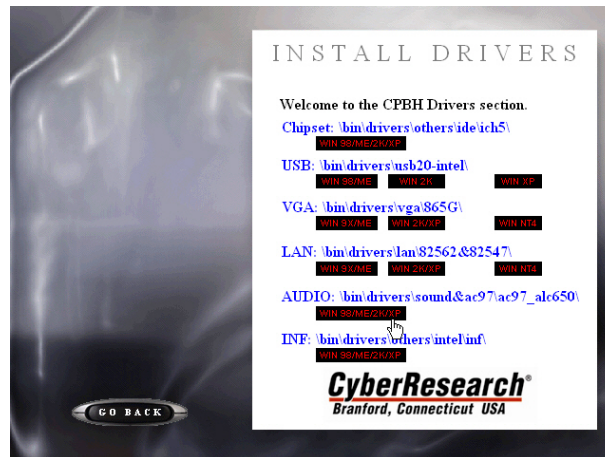
2. Then click on the Operating System link below the "Audio:" path, as seen above.

3. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.
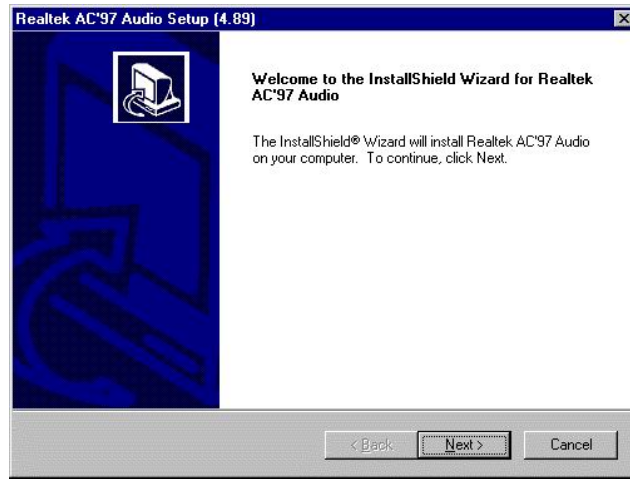

4. Once the InstallShield Wizard completes the operation and update of your AC'97 driver, it will ask you to remove disks from their drives, and prompt you to restart your system. Tick on the **"Yes, I want to restart my computer now"**. Afterwards, click on the **Finish** button to complete the installation process. The system changes you made will take effect after the system restarts.

5.5   USB2.0 Driver Installation

5.5.1   Win 95/98

1.   Insert Utility CD Disk into your CD ROM drive. Click "Install Drivers" then click the "CPBH" button.
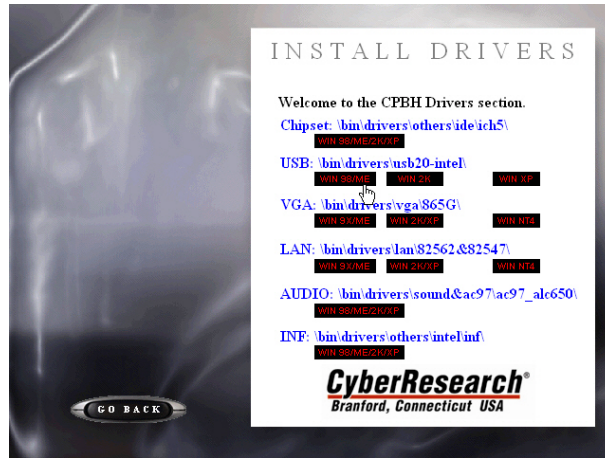
2.   Then click on the appropriate Operating System link below the "LAN:" path, as seen above.
3.   The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.
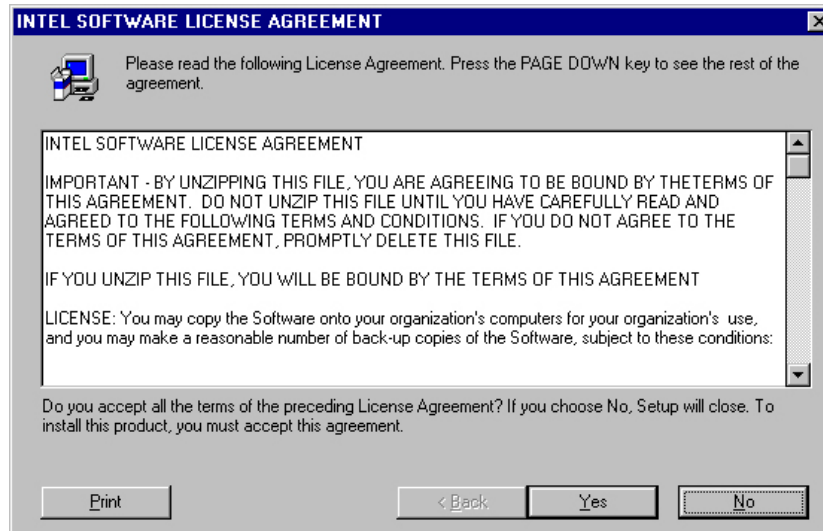
4. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **Close** button to reboot. Only after your computer boots will the new settings take effect.
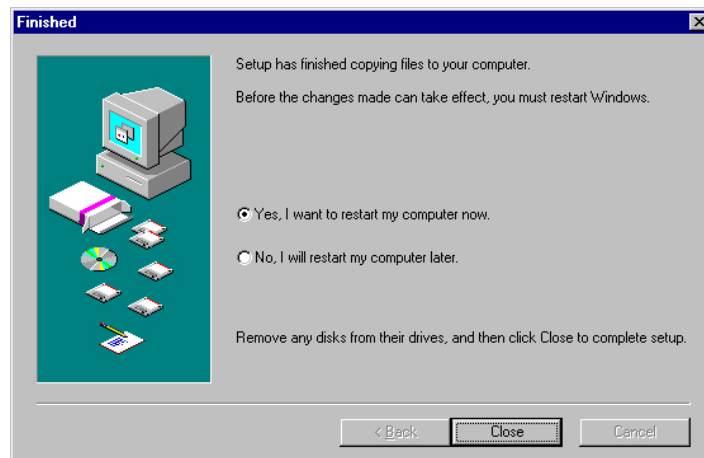

5.5.2 Win 2000

1. With the Utility CD Disk still in your CD ROM drive, right click on "**My Computer**" icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.

2. Select on Other Devices from the list of devices and then double-click on Universal Serial Bus (USB) Controller.
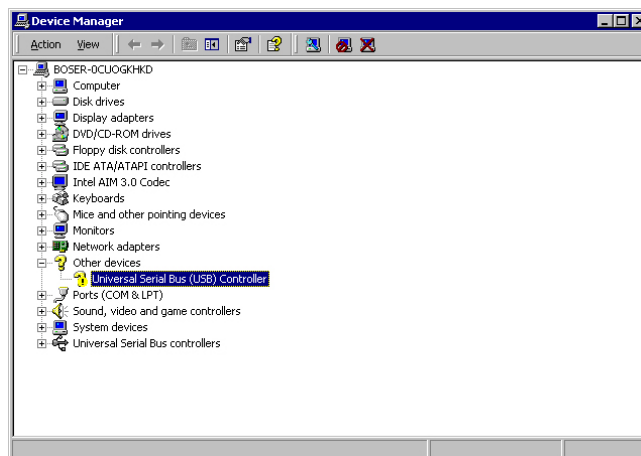
3.   The Universal Serial Bus (USB) Controller Properties screen then appears, allowing you to re-install the driver. Select Update Driver from the main menu to proceed.
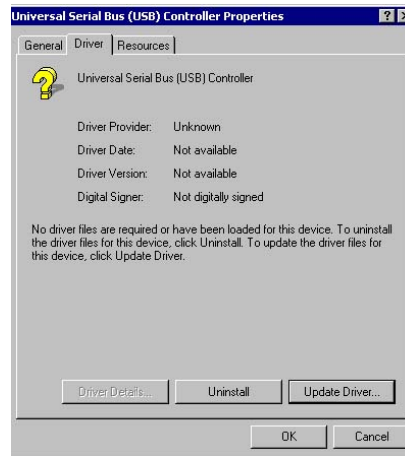

4.   When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.
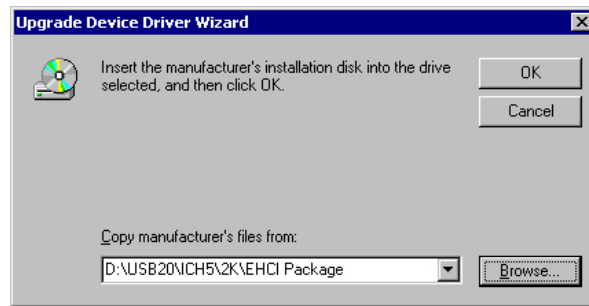
5. Click on the **"Search for a suitable driver for my device (recommended)"** once the following screen appears. Click on the **Next** to proceed.
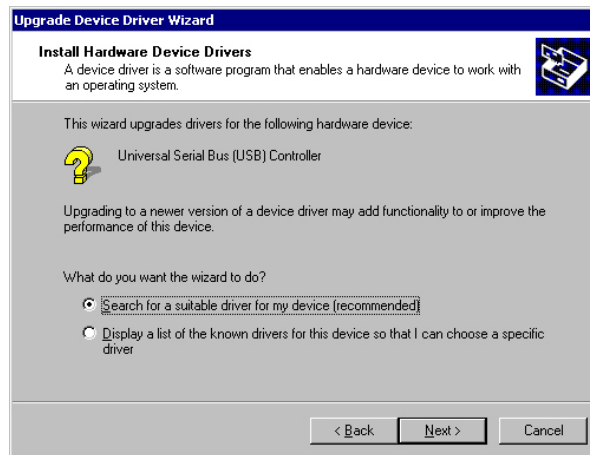
6. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue
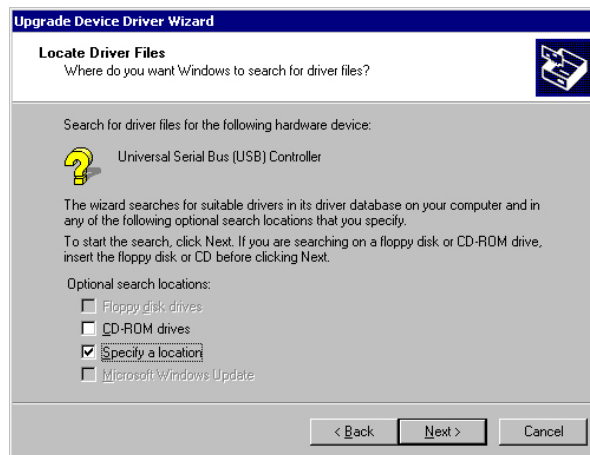
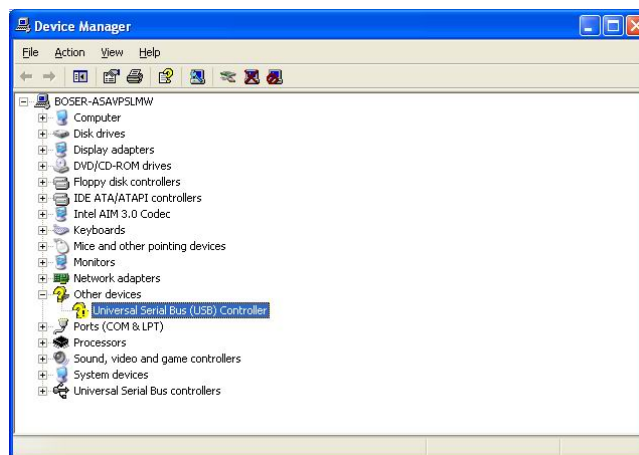7. Choose sisusb2.inf and press on the **Open** button to accept and proceed.

8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver, click on the **Finish** button to complete the installation process.

5.5.3 Win XP

**NOTE:** *Please make sure you have already installed **Service Pack1**.*

1. With the Utility CD Disk still in your CD ROM drive, right click on **"My Computer"** icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.

2. Tick on the **"Install the software automatically (Recommended)"** once the following screen appears. Click on the **Next >** to proceed.

3. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver, click on the **Finish** button to complete the installation process.
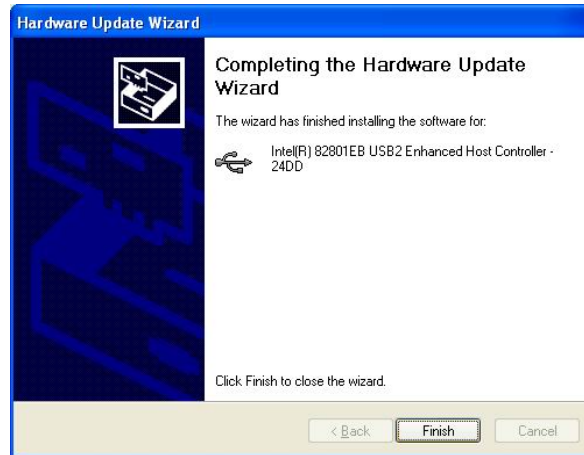
Product Service

Diagnosis and Debug

CyberResearch, Inc. maintains technical support lines staffed by experienced Applications Engineers and Technicians. There is no charge to call and we will return your call promptly if it is received while our lines are busy. Most problems encountered with data acquisition products can be solved over the phone. Signal connections and programming are the two most common sources of difficulty. CyberResearch support personnel can help you solve these problems, especially if you are prepared for the call.

To ensure your call's overall success and expediency:

1)   Have the phone close to the PC so you can conveniently and quickly take action that the Applications Engineer might suggest.
2)   Be prepared to open your PC, remove boards, report back-switch or jumper settings, and possibly change settings before reinstalling the modules.
3)   Have a volt meter handy to take measurements of the signals you are trying to measure as well as the signals on the board, module, or power supply.
4)   Isolate problem areas that are not working as you expected.
5)   Have the source code to the program you are having trouble with available so that preceding and prerequisite modes can be referenced and discussed.
6)   Have the manual at hand. Also have the product's utility disks and any other relevant disks nearby so programs and version numbers can be checked.

Preparation will facilitate the diagnosis procedure, save you time, and avoid repeated calls. Here are a few preliminary actions you can take before you call which may solve some of the more common problems:

1)   Check the PC-bus power and any power supply signals.
2)   Check the voltage level of the signal between SIGNAL HIGH and SIGNAL LOW, or SIGNAL+ and SIGNAL– . It CANNOT exceed the full scale range of the board.
3)   Check the other boards in your PC or modules on the network for address and interrupt conflicts.
4)   Refer to the example programs as a baseline for comparing code.

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Warranty Notice

CyberResearch, Inc. warrants that this equipment as furnished will be free from defects in material and workmanship for a period of one year from the confirmed date of purchase by the original buyer and that upon written notice of any such defect, CyberResearch, Inc. will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our plant in any way which may, in the judgment of the manufacturer, affect its reliability. Nor will it apply if the equipment has been used in a manner exceeding or inconsistent with its specifications or if the serial number has been removed.

CyberResearch, Inc. does not assume any liability for consequential damages as a result from our products uses, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty shall constitute the sole and exclusive remedy of any Buyer of Seller equipment and the sole and exclusive liability of the Seller, its successors or assigns, in connection with equipment purchased and in lieu of all other warranties expressed implied or statutory, including, but not limited to, any implied warranty of merchant ability or fitness and all other obligations or liabilities of seller, its successors or assigns.

The equipment must be returned postage prepaid. Package it securely and insure it. You will be charged for parts and labor if the warranty period has expired.

Returns and RMAs

If a CyberResearch product has been diagnosed as being non-functional, is visibly damaged, or must be returned for any other reason, please call for an assigned RMA number. The RMA number is a key piece of information that lets us track and process returned merchandise with the fastest possible turnaround time.

<div align="center">

PLEASE CALL FOR AN RMA NUMBER!

Packages returned without an RMA number will be refused!

</div>

In most cases, a returned package will be refused at the receiving dock if its contents are not known. The RMA number allows us to reference the history of returned products and determine if they are meeting your application's requirements. When you call customer service for your RMA number, you will be asked to provide information about the product you are returning, your address, and a contact person at your organization.

<div align="center">

Please make sure that the RMA number is prominently displayed on the outside of the box.

• Thank You •

</div>

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